LIMETREE BAY
REFINING, LLC

May 17, 2021

Mr. Austin F. Callwood, Director
Division of Environmental Protection
Department of Planning & Natural Resources
45 Mars Hill
Frederiksted, V.I. 00840-4474

SUBJECT: **East Incinerator SO_2 Exceedance and Opacity – May 10-11, 2021**

Dear Mr. Callwood:

This letter is submitted in compliance with Condition No. 2.4.5.1 of Limetree Bay Title V permit as a follow-up to the email notifications to Ms. Verline Marcellin of the Division of Environmental Protection on May 10, 2021 at 8:57 AM and 12:12 PM regarding an opacity event and SO_2 exceedance at the east incinerator (H-4745).

The Continuous Emissions Monitoring System (CEMS) at the east incinerator recorded SO_2 concentrations in excess of 250 ppm based on a 12-hr rolling average (ref. 40 CFR 60.102a(f)(1)(i)) on May 10-11, 2021.

The following table provides the 12-hr SO_2 concentrations at the east incinerator during the exceedance event.

Source		EINCIN
Parameter		SO2PPMC
Unit		(PPMC)
05/10/21	05:00	58.8
05/10/21	06:00	63.6
05/10/21	07:00	2,616.8
05/10/21	08:00	4,465.1
05/10/21	09:00	4,817.6
05/10/21	10:00	5,101.9
05/10/21	11:00	5,268.6
05/10/21	12:00	5,371.6
05/10/21	13:00	5,488.5
05/10/21	14:00	5,591.5

Source		EINCIN
Parameter		SO2PPMC
Unit		(PPMC)
05/10/21	15:00	5,678.9
05/10/21	16:00	5,786.7
05/10/21	17:00	5,914.5
05/10/21	18:00	6,004.8
05/10/21	19:00	3,610.7
05/10/21	20:00	1,900.3
05/10/21	21:00	1,559.0
05/10/21	22:00	1,280.9
05/10/21	23:00	1,122.3
05/11/21	00:00	1,021.9

Source		EINCIN
Parameter		SO2PPMC
Unit		(PPMC)
05/11/21	01:00	906.5
05/11/21	02:00	805.5
05/11/21	03:00	718.8
05/11/21	04:00	608.4
05/11/21	05:00	480.1
05/11/21	06:00	386.4
05/11/21	07:00	226.9
05/11/21	08:00	88.4

Additionally, an opacity was observed on May 10, 2021 at approximately 7:29 AM from the east incinerator and lasted until 7:40 AM. Opacity shall be less than 20% (ref. Title V permit condition 3.1.2.6.2).

From approximately 12:45 AM to 2:13 AM on May 10, 2021, the No. 4 Sulfur Recovery Unit (4SRU) H_2S to SO_2 ratio in the tail gas was off spec due to poor combustion control on the 4SRU Primary Burner. This scenario caused a higher concentration of SO_2 to enter the Tail Gas Treating Unit (TGTU). During that same time period, the Quench Tower Overhead analyzer was inaccurately reading the percent of H_2 in the TGTU preventing the H_2 supply valve from opening and adding external H_2 when the elevated concentrations of SO_2 entered the TGTU. The insufficient reaction conversion from SO_2 to H_2S prompted Operations to divert the tail gas to the incinerator, to protect the TGTU and caused the SO_2 exceedances and opacity at the east incinerator.

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The following corrective measures have been implemented:

1. Added an emergency priority alarm to the H_2S to SO_2 ratio tags in the SRUs with an alarm setpoint of 1.5 to get the Console Operator to take prompt action when the tail gas ratio falls below 2:1.

2. Instituted a minimum of weekly routine maintenance of all SRU and TGTU analyzers to better ensure accuracy of tail gas SO_2 and H_2S measurement as well as H_2 measurement in the TGTU process gas.

We are also evaluating additional potential recommendations.

If you have any questions or need additional information, please contact Maria Aloyo at (340) 692-3781.

Sincerely,

Neil Morgan
VP and General Manager
Limetree Bay Refining, LLC

Electronic Copy: Verline Marcellin (DPNR)
Robert Buettner (EPA)
Patrick Foley (EPA)
Harish Patel (EPA)